Patent claims

1. A method of coating a gas turbine blade (12) with a metallic anti-oxidation coating (13) in a vacuum plant (1), in which method

(a) the gas turbine blade (12) is fed into the vacuum plant (1) and heated from room temperature (T_R) to a gas turbine blade temperature (T),

(b) the metallic anti-oxidation coating (13) is applied to the gas turbine blade (12), and

(c) the coated gas turbine blade (12) is subjected to a postheat treatment,

characterized in that the postheat treatment follows the application of the coating (13) in such a way that the temperature of the gas turbine blade (12) after the application of the coating (13) and before the postheat treatment is at least as high as a minimum temperature (T_{min}), the minimum temperature (T_{min}) being higher than room temperature (T_R).

2. The method as claimed in claim 1, characterized in that the minimum temperature (T_{min}) is about 500 K, in particular about 900 K to 1400 K.

3. The method as claimed in claim 1 or 2, characterized in that the application of the metallic coating (13) to the gas turbine blade (12) is effected in a coating region (9) and the postheat treatment is effected in a postheat treatment region (10), the coating region (9) and the postheat treatment region (10) being different regions of the vacuum plant (1).

4. The method as claimed in claim 3, characterized in that the coated gas turbine blade (12) is transferred automatically from the coating

region (9) into the postheat treatment region (13).

5. The method as claimed in claim 1, 2, 3 or 4, characterized in that the gas turbine blade (12) subjected to postheat treatment is cooled down to room temperature (T_R) in a controlled manner.

6. The method as claimed in one of claims 3, 4 or 5, characterized in that a first number of gas turbine blades (12) is located in the coating region (9) and simultaneously a second number of gas turbine blades (12) is located in the postheat treatment region (10), the second number being larger than the first number.

7. The method as claimed in one of the preceding claims, in particular as claimed in claim 7, characterized in that the parent material used for the gas turbine blade (12) is a nickel- or iron- or cobalt-base superalloy.

8. The method as claimed in one of the preceding claims, characterized in that the metallic coating (13) used is an MCrAlX alloy, where M stands for one or more elements of the group comprising iron, cobalt and nickel, Cr stands for chromium, Al stands for aluminum, and X stands for one or more elements of the group comprising yttrium, rhenium and the elements of the rare earths.

9. An apparatus for coating a gas turbine blade (12) with a metallic anti-oxidation coating (13) in a vacuum plant (1), comprising a coating chamber (3) and a postheat treatment chamber (5), characterized in that the postheat treatment chamber (5) is connected to the coating chamber (3) in a vacuum-tight manner.

10. The apparatus as claimed in claim 9, characterized in that a heating device (7A) is provided in the postheat treatment chamber (5).

11. The apparatus as claimed in claim 9 or 10, characterized in that a preheating chamber (2) is provided, this preheating chamber (2) being arranged upstream of the coating chamber (3) and being connected to the latter in a vacuum-tight manner.

12. The apparatus as claimed in claim 9, 10 or 11, characterized in that a cooling chamber (6) is provided, this cooling chamber (6) being arranged downstream of the postheat treatment chamber (5) and being connected to the latter in a vacuum-tight manner.

13. The apparatus as claimed in claim 9, 10, 11 or 12, characterized in that the vacuum-tight connection between the coating chamber (3) and the postheat treatment chamber (5) is produced via a lock chamber (4).

14. The apparatus as claimed in claim 13, characterized in that a heating device (7) is provided in the lock chamber (4).

15. The apparatus as claimed in one of claims 9 to 14, characterized in that a transfer system (8, 11) is provided for the automatic transfer of the gas turbine blade (12) from a vacuum chamber (2, 3, 4, 5, 6) into another vacuum chamber (2, 3, 4, 5, 6) of the vacuum plant (1).

16. The apparatus as claimed in one of claims 9 to 15, characterized in that the coating chamber (3) has a first receiving capacity and the

postheat treatment chamber (5) has a second receiving capacity for gas turbine blades (12), the second receiving capacity being greater than the first receiving capacity.